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PATENT APPLICATION

AF/2835 ✓

UNITED STATES PATENT AND TRADEMARK OFFICE  
APPLICATION FOR PATENT

Appellant: HUBER  
Serial No.: 09/383,210  
Filed: August 26, 1999  
Title: Thermally Conductive Inlay Mat For  
Electrical And Electronic Appliances  
Examiner: Boris L. Chervinsky  
Group Art Unit: 2835

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed for Assistant Commissioner for Patents, Washington, D.C. 20231 on April 3, 2003 by Carlo S. Bessone.

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

COVER LETTER

Enclosed are three (3) copies of a Brief in Support of an Appeal in the above-entitled application which is submitted in response to the Final Rejection dated October 29, 2002 wherein all the claims then of record (claims 1, 2, 4-6 and 8-11) were finally rejected. A Notice of Appeal was filed on February 5, 2003, together with an authorization to charge the appeal fee to a specified Deposit Account. Pursuant to 37 CFR 1.192, this Brief is filed in triplicate within two months of the date of filing said Notice of Appeal.

The additional fee of \$320 for filing this Brief in Support of an Appeal under Fee Code 1402 should be charged to Deposit Account No. 15-0685. A duplicate copy of this sheet is enclosed.

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Respectfully submitted,

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PATENT APPLICATION

#21  
4-14-03  
Robert  
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## UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCESEx parte HUBER

## APPLICATION FOR PATENT

Serial No.: 09/383,210  
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Electrical And Electronic Appliances  
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## BRIEF IN SUPPORT OF AN APPEAL

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This Brief in Support on an Appeal is submitted in response to the Final Office Action dated October 29, 2002 wherein all the claims then of record (claims 1, 2, 4-6 and 8-11) were finally rejected. A Notice of Appeal was filed on February 5, 2003, together with an authorization to charge the appeal fee to a specified Deposit Account. Pursuant to 37 CFR 1.192, this Brief is filed in triplicate within two months of the date of filing said Notice of Appeal.

No oral hearing is requested.

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REAL PARTY IN INTEREST

The real party in interest in the above-identified application is Patent-Treuhand-Gesellschaft fuer elektrische Gluelampen mbH.

RELATED APPEALS AND INTERFERENCES

It is believed that there are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1, 2, 4-6 and 8-11 have been rejected and are herein appealed. These claims are delineated in the Appendix attached hereto. Claims 3 and 7 have been canceled. No claims have been allowed.

STATUS OF AMENDMENTS

No amendment has been filed subsequent to final rejection.

SUMMARY OF INVENTION

Referring to the drawings of the application disclosure, there is shown in FIGS. 1a, 1b and 1c a thermally conductive inlay mat (3) for electrical and electronic appliances, having a base body (5) of simple sheet-like geometry. An underside (4) of the base body is adapted for contact with an outer wall of the appliance and a top side adapted for contact with a heat source inside the appliance. The mat is formed from an electrically insulating homogeneous material which has properties that produce a sticky surface. With particular

attention to FIGS. 2 and 3, there is shown an electrical or electronic appliance (10) comprising a housing with wall parts (12, 13, 14) and electrical and/or electronic components which are arranged therein and act as a heat source, wherein a thermally conductive mat (3) is inserted between the heat source and an adjoining wall part of the housing.

### ISSUES

Whether claims 1-6 are unpatentable under 35 U.S.C. 103(a) over Daszkowski in view of Saneinejad et al. or, alternatively, in view of Dolbear et al.

Whether claims 8-11 are unpatentable under 35 U.S.C. 103(a) over Smith et al. in view of Saneinejad et al. or Dolbear et al.

### GROUPING OF CLAIMS

The appealed groups of rejection apply to more than one claim. Each of the appealed claims are deemed to be separately patentable. Therefore, the claims do not stand or fall together.

ARGUMENTS

CLAIMS 1 THROUGH 6 ARE NOT OBVIOUS OVER  
DASZKOWSKI IN VIEW OF SANEINEJAD ET AL. OR, ALTERNATIVELY,  
IN VIEW OF DOLBEAR ET AL.

According to the Final Office Action dated October 29, 2002, claims 1-6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Daszkowski in view of Saneinejad et al. or, alternatively, in view of Dolbear et al.

This rejection is respectfully traversed and reversal thereof by this Honorable Board is respectfully requested. Appellant respectfully submits that the patents cited by the Examiner, taken singly or in combination, clearly fails to teach or suggest the claimed invention.

Independent claim 1 defines a thermally conductive inlay mat (3) for electrical and electronic appliances, having a base body (5) of simple sheet-like geometry, an underside (4) adapted for contact with an outer wall of the appliance and a top side adapted for contact with a heat source inside the appliance. The mat is formed from an electrically insulating homogeneous material which has properties that produce a sticky surface.

In contrast to the present invention, Daszkowski teaches the use of either a metal resilient material or an electrically insulative non-homogeneous material which is a compound which is electrically insulating but which is filled with thermally conductive particles, especially silver copper, see column 6, line 26-31. This has the disadvantage that in case such a mat is "lacerated" by sharp edges of the electric or electronic parts (for example resistor or capacitor) on a circuit board it may cause a breakdown. Thus, a homogeneous, electrically insulating material having properties that produce a sticky surface is an advantage. The present invention will not cause breakdowns and its grade of thermal conductivity is much higher because not only some particles inside but the whole mat consists of a thermal conductive material. In other words, whereas Daszkowski uses a

composite of two different materials (i.e., non-homogeneous) to provide two different purposes (thermal conductivity and electrical insulation) the present invention can provide these two purposes by one homogenous material. of course this is more effective and more reliable together with an additional advantage being sticky. The Examiner admits that Daszkowski does not disclose a sticky surface.

At column 3, lines 2-4, Saneinejad et al discloses the use of double-side adhesive thermal tape. With reference to FIG. 5, Dolbear et al discloses at column 7, lines 24-30 the placement of a restraint 64 such as epoxy, sticky tape or foil on outer ledge 65 adjacent and co-planar with the periphery of support frame top 54 for containing a first paste 20d-1 and forming part of a sealable connection between cold plate 66 and package 40. Clearly, Saneinejad et al and Dolbear et al fail to teach or suggest forming a thermally conductive inlay mat from an electrically insulating homogeneous material having properties that produce a sticky surface. Being formed from a material having properties which produce a sticky surface has an added benefit that, for example, an additional component (i.e., epoxy, tape or foil) does not have to be added to an external surface of the material.

The Examiner states on page 2 of the Final Office Action that "any thermal interface pad including conventional epoxy based or acrylic based are sticky." Appellant respectfully submits the Examiner has not provide the required support for his statement. Notwithstanding the above, there is no teaching or suggestion to make the thermal interface of Daszkowski from an electrically insulating homogeneous material having properties that produce a sticky surface.

On Page 3 of the Final Office Action, the Examiner contends that functional language in a product claim must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. Appellant respectfully submits that the claim language "having properties that produce a sticky surface" is properly used in conjunction with the structural language of an "electrically insulating homogeneous material" to properly define

that material from which the inlay mat is made. More importantly, such language fully complies with 35 U.S.C. 112, second paragraph, because it distinctly claims the subject matter which Appellant regards as the invention.

At page 4 of the Final Office Action, the Examiner is of the opinion that specific properties of the homogeneous insulating material that produces a sticky surface are disclosed by Dolbear et al as well as by other references cited. Appellant respectfully disagrees for the reasons set forth above. Moreover, the Examiner contends that Appellant fails to disclose and claim specific composition or formula to enable someone to make and use such materials. Appellant respectfully submits that the information provided in the Specification would enable someone skilled in the art to make and use the invention as defined in the claims.

In view of the above, Appellant respectfully submits that one of ordinary skill in the art attempting to provide an improved thermally conductive inlay mat would not have been motivated to have a sticky surface for the thermal interface of Daszkowski et al as proposed by the Examiner. Absent any express or implied suggestion in the applied art which would have led the artisan to modify the patent of Daszkowski et al as urged by the Examiner, it is submitted that the Examiner's rejection is based upon a hindsight reconstruction of Appellant's invention. Accordingly, the invention as defined by independent claim 1 is deemed fully patentable over the patents Daszkowski et al, Saneinejad et al. and Dolbear et al.

Appellant's claims 2 and 4-6 are dependent on independent claim 1, and therefore include all recitations thereof. Moreover, these dependent claims include additional limitations that, when combined with the recitations in their respective independent claims, render these claims further distinct and non-obvious over the cited references. Therefore, claims 2 and 4-6 are likewise deemed allowable.

CLAIMS 8 THROUGH 11 ARE NOT OBVIOUS OVER  
SMITH ET AL. IN VIEW OF SANEINEJAD ET AL. OR DOLBEAR ET AL.

Claim 8 defines an electrical or electronic appliance (10) comprising a housing with wall parts (12, 13, 14) and electrical and/or electronic components which are arranged therein and act as a heat source, wherein a thermally conductive mat (3) is inserted between the heat source and an adjoining wall part of the housing. The mat has a base body (5) of simple sheet-like geometry. An underside (4) of the base body is adapted for contact with the outer wall of the appliance and a top side of the base body is adapted for contact with the heat source inside the appliance. The mat is formed from an electrically insulating homogeneous material having properties that produce a sticky surface.

With particular attention to column 3, lines 1-31, Smith et al teaches a shielded heat sink assembly 40 which includes a metallic heat sink sheet 42, a radiant shield sheet 44 and a generally rectangular resilient silicon heat sink block 46. The heat sink sheet 42 has layers 48, 50 of thermally conductive adhesive material disposed on its top and bottom sides. Accordingly, Smith et al fails to disclose a thermally conductive inlay mat formed from a material having properties that produce a sticky surface as recited in independent claim 8. Moreover, the secondary references cited by the Examiner fail to teach or suggest the invention for the reasons set forth above with respect to independent claim 1.

Appellant's claims 9-11 are dependent on independent claim 8, and therefore include all recitations thereof. Moreover, these dependent claims include additional limitations that, when combined with the recitations in their respective independent claims, render these claims further distinct and non-obvious over the cited references. Therefore, claims 9-11 are likewise deemed allowable.

Appellant respectfully submits that in view of the above, it is evident that the cited references lack proper teaching, suggestion, or motivation for modifying the thermal interface of Daszkowski or Smith et al. in the manner proposed by the



Examiner. The only way the Examiner could have arrived at his conclusion is through hindsight analysis by reading into the art the teachings of the Applicant. Hindsight analysis is clearly improper, since the statutory test is whether "the subject matter as a whole would have been obvious at the time the invention was made."

### CONCLUSION

For the reasons and arguments presented above, Appellant submits that claims are deemed fully patentable over the particular references cited by the Examiner. Accordingly, reversal of the Examiner's rejections of claims 1, 2, 4-6 and 8-11 under the provisions of 35 U.S.C. 103(a) by this Honorable Board is earnestly and respectfully requested.

Respectfully submitted,



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on April 3, 2003 by Carlo S. Bessone

APPENDIX

The following represent all of Appellant's claims on appeal:

1. A thermally conductive inlay mat (3) for electrical and electronic appliances, having a base body (5) of simple sheet-like geometry, an underside (4) of the base body adapted for contact with an outer wall of the appliance and a top side of the base body adapted for contact with a heat source inside the appliance, the mat being formed from an electrically insulating homogeneous material having properties that produce a sticky surface.

2. The inlay mat as claimed in claim 1, wherein the mat (3) comprises modified hydrocarbon resin or a silicone composite sheet.

4. The inlay mat as claimed in claim 1, wherein the thickness of the mat (3) is at least 1 mm.

5. The inlay mat as claimed in claim 1, wherein the underside (4) is smooth, while the top side has a height-compensating structure.

6. The inlay mat as claimed in claim 5, wherein the height-compensating structure comprises raised lamellae (6).

8. An electrical or electronic appliance (10), comprising a housing with wall parts (12, 13, 14) and electrical and/or electronic components which are arranged therein and act as a heat source, wherein a thermally conductive mat (3) is inserted between the heat source and an adjoining wall part of the housing, the mat having a base body (5) of simple sheet-like geometry, an underside (4) of the base body adapted for contact with the outer wall of the appliance and a top side of the base body adapted for contact with the heat source inside the appliance, and the mat being formed from an electrically insulating homogeneous material having properties that produce a sticky surface.

9. The appliance as claimed in claim 8, wherein at least some of the components are mounted on a circuit board (15).

10. The appliance as claimed in claim 8, wherein a film (7) with a high degree of electrical insulation is additionally inserted between mat (3) and adjoining wall part (12).

11. The appliance as claimed in claim 8, wherein the adjoining wall part, which is in particular the base plate (12), itself has good thermal conductivity and comprises in particular metal.